Attorney's Docket No.: 06275-489US1

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## Amendments to the Claims:

This listing of claims replaces all prior versions and listings of claims in the application:

## Listing of Claims:

## 1. (Original) A compound of formula (I):

$$R^{1}$$
  $R^{3}$   $R^{2}$   $R^{2}$   $R^{3}$   $R^{2}$   $R^{4}$   $R^{2}$   $R^{4}$   $R^{2}$   $R^{4}$   $R^{2}$ 

wherein:

A is absent or is  $(CH_2)_2$ ;

 $R^{1}$  is  $C(O)NR^{10}R^{11}$ ,  $C(O)_{2}R^{12}$ ,  $NR^{13}C(O)R^{14}$ ,  $NR^{15}C(O)NR^{16}R^{17}$ ,  $NR^{18}C(O)_{2}R^{19}$ , heterocyclyl, aryl or heteroaryl;

 $R^{10}$ ,  $R^{13}$ ,  $R^{15}$ ,  $R^{16}$  and  $R^{18}$  are hydrogen or  $C_{1-6}$  alkyl;

 $R^{11}$ ,  $R^{12}$ ,  $R^{14}$ ,  $R^{17}$  and  $R^{19}$  are  $C_{1-8}$  alkyl (optionally substituted by halo, hydroxy,  $C_{1-6}$  alkoxy,  $C_{1-6}$  haloalkoxy,  $C_{3-6}$  cycloalkyl (optionally substituted by halo),  $C_{5-6}$  cycloalkenyl,  $S(C_{1-4}$  alkyl),  $S(O)(C_{1-4}$  alkyl),  $S(O)_2(C_{1-4}$  alkyl), heteroaryl, aryl, heteroaryloxy or aryloxy), aryl, heteroaryl,  $C_{3-7}$  cycloalkyl (optionally substituted by halo or  $C_{1-4}$  alkyl),  $C_{4-7}$  cycloalkyl fused to a phenyl ring,  $C_{5-7}$  cycloalkenyl, or, heterocyclyl (itself optionally substituted by oxo,  $C(O)(C_{1-6}$  alkyl),  $S(O)_k(C_{1-6}$  alkyl), halo or  $C_{1-4}$  alkyl); or  $R^{11}$ ,  $R^{12}$ ,  $R^{14}$  and  $R^{17}$  can also be hydrogen; or  $R^{10}$  and  $R^{11}$ , and/or  $R^{16}$  and  $R^{17}$  may join to form a 4-, 5- or 6-membered ring which optionally includes a nitrogen, oxygen or sulphur atom, said ring being optionally substituted by  $C_{1-6}$  alkyl,  $S(O)_i(C_{1-6}$  alkyl) or  $C(O)(C_{1-6}$  alkyl);

R<sup>2</sup> is phenyl, heteroaryl or C<sub>3-7</sub> cycloalkyl;

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R<sup>3</sup> is H or C<sub>1-4</sub> alkyl; R<sup>4</sup> is heterocyclyl; n is 1, 2 or 3;

aryl, phenyl and heteroaryl moieties are independently optionally substituted by one or more of halo, cyano, nitro, hydroxy, OC(O)NR<sup>20</sup>R<sup>21</sup>, NR<sup>22</sup>R<sup>23</sup>, NR<sup>24</sup>C(O)R<sup>25</sup>, NR<sup>26</sup>C(O)NR<sup>27</sup>R<sup>28</sup>, S(O)<sub>2</sub>NR<sup>29</sup>R<sup>30</sup>, NR<sup>31</sup>S(O)<sub>2</sub>R<sup>32</sup>, C(O)NR<sup>33</sup>R<sup>34</sup>, CO<sub>2</sub>R<sup>36</sup>, NR<sup>37</sup>CO<sub>2</sub>R<sup>38</sup>, S(O)<sub>0</sub>R<sup>39</sup>, OS(O)<sub>2</sub>R<sup>49</sup>, C<sub>1-6</sub> alkyl (optionally mono-substituted by S(O)<sub>2</sub>R<sup>50</sup> or  $C(O)NR^{51}R^{52}$ ),  $C_{2-6}$  alkenyl,  $C_{2-6}$  alkynyl,  $C_{3-10}$  cycloalkyl,  $C_{1-6}$  haloalkyl,  $C_{1-6}$  alkoxy( $C_{1-6}$ 6) alkyl, C<sub>1-6</sub> alkoxy, C<sub>1-6</sub> haloalkoxy, phenyl, phenyl(C<sub>1-4</sub>) alkyl, phenoxy, phenylthio, phenylS(O), phenylS(O)<sub>2</sub>, phenyl( $C_{1-4}$ )alkoxy, heteroaryl, heteroaryl( $C_{1-4}$ )alkyl, heteroaryloxy or heteroaryl(C<sub>1-4</sub>)alkoxy; wherein any of the immediately foregoing phenyl and heteroaryl moieties are optionally substituted with halo, hydroxy, nitro, S(C<sub>1-4</sub> alkyl), S(O)(C<sub>1-4</sub> alkyl), S(O)<sub>2</sub>(C<sub>1-4</sub> alkyl), S(O)<sub>2</sub>NH<sub>2</sub>, S(O)<sub>2</sub>NH(C<sub>1-4</sub> alkyl), S(O)<sub>2</sub>N(C<sub>1-4</sub> alkyl)<sub>2</sub>, cyano,  $C_{1-4}$  alkyl,  $C_{1-4}$  alkoxy,  $C(O)NH_2$ ,  $C(O)NH(C_{1-4}$  alkyl),  $C(O)N(C_{1-4}$  alkyl)<sub>2</sub>,  $CO_2H$ ,  $CO_2(C_{1-4} \text{ alkyl})$ ,  $NHC(O)(C_{1-4} \text{ alkyl})$ ,  $NHS(O)_2(C_{1-4} \text{ alkyl})$ ,  $CF_3$  or  $OCF_3$ ; unless otherwise stated heterocyclyl is optionally substituted by  $C_{1-6}$  alkyl [optionally substituted by phenyl {which itself optionally substituted by halo, C<sub>1-4</sub> alkyl, C<sub>1-4</sub> alkoxy, cyano, nitro,  $CF_3$ ,  $OCF_3$ ,  $(C_{1-4} \text{ alkyl})C(O)NH$ ,  $S(O)_2NH_2$ ,  $C_{1-4} \text{ alkylthio}$ ,  $S(O)(C_{1-4} \text{ alkyl})$ or  $S(O)_2(C_{1-4} \text{ alkyl})$  or heteroaryl {which itself optionally substituted by halo,  $C_{1-4} \text{ alkyl}$ , C<sub>1-4</sub> alkoxy, cyano, nitro, CF<sub>3</sub>, (C<sub>1-4</sub> alkyl)C(O)NH, S(O)<sub>2</sub>NH<sub>2</sub>, C<sub>1-4</sub> alkylthio, S(O)(C<sub>1-4</sub> alkyl) or  $S(O)_2(C_{1-4} \text{ alkyl})$ , phenyl {optionally substituted by halo,  $C_{1-4} \text{ alkyl}$ ,  $C_{1-4}$ alkoxy, cyano, nitro, CF<sub>3</sub>, OCF<sub>3</sub>, (C<sub>1-4</sub> alkyl)C(O)NH, S(O)<sub>2</sub>NH<sub>2</sub>, C<sub>1-4</sub> alkylthio, S(O)(C<sub>1</sub>. 4 alkyl) or  $S(O)_2(C_{1-4} \text{ alkyl})$ , heteroaryl {optionally substituted by halo,  $C_{1-4} \text{ alkyl}$ ,  $C_{1-4}$ alkoxy, cyano, nitro,  $CF_3$ ,  $(C_{1-4} \text{ alkyl})C(O)NH$ ,  $S(O)_2NH_2$ ,  $C_{1-4} \text{ alkylthio}$ ,  $S(O)(C_{1-4} \text{ alkyl})$ or  $S(O)_2(C_{1-4} \text{ alkyl})$ ,  $S(O)_2NR^{40}R^{41}$ ,  $C(O)R^{42}$ ,  $C(O)_2(C_{1-6} \text{ alkyl})$  (such as tertbutoxycarbonyl),  $C(O)_2(phenyl(C_{1-2} alkyl))$  (such as benzyloxycarbonyl),  $C(O)NHR^{43}$ , S(O)<sub>2</sub>R<sup>44</sup>, NHS(O)<sub>2</sub>NHR<sup>45</sup>, NHC(O)R<sup>46</sup>, NHC(O)NHR<sup>47</sup> or NHS(O)<sub>2</sub>R<sup>48</sup>, provided none of these last four substituents is linked to a ring nitrogen:

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k, l and q are, independently, 0, 1 or 2;

 $R^{20}$ ,  $R^{22}$ ,  $R^{24}$ ,  $R^{26}$ ,  $R^{27}$ ,  $R^{29}$ ,  $R^{31}$ ,  $R^{33}$ ,  $R^{37}$ ,  $R^{40}$  and  $R^{51}$  are, independently, hydrogen or  $C_{1-6}$  alkyl;

 $R^{21}$ ,  $R^{23}$ ,  $R^{25}$ ,  $R^{28}$ ,  $R^{30}$ ,  $R^{32}$ ,  $R^{34}$ ,  $R^{36}$ ,  $R^{38}$ ,  $R^{39}$ ,  $R^{41}$ ,  $R^{42}$ ,  $R^{43}$ ,  $R^{44}$ ,  $R^{45}$ ,  $R^{46}$ ,  $R^{47}$ ,  $R^{48}$ ,  $R^{49}$ ,  $R^{50}$  and  $R^{52}$  are, independently,  $C_{1-6}$  alkyl (optionally substituted by halo, hydroxy,  $C_{1-6}$  alkoxy,  $C_{1-6}$  haloalkoxy,  $C_{3-6}$  cycloalkyl,  $C_{5-6}$  cycloalkenyl,  $S(C_{1-4}$  alkyl),  $S(O)(C_{1-4}$  alkyl), heteroaryl, phenyl, heteroaryloxy or phenyloxy),  $C_{3-7}$  cycloalkyl, phenyl or heteroaryl; wherein any of the immediately foregoing phenyl and heteroaryl moieties are optionally substituted with halo, hydroxy, nitro,  $S(C_{1-4}$  alkyl),  $S(O)(C_{1-4}$  alkyl),  $S(O)_2(C_{1-4}$  alkyl),  $S(O)_2NH_2$ ,  $S(O)_2NH(C_{1-4}$  alkyl),  $S(O)_2N(C_{1-4}$  alkyl),  $S(O)_2NH_2$ ,  $S(O)_2NH(C_{1-4}$  alkyl),  $S(O)_2N(C_{1-4}$  alkyl),  $S(O)_2NH_2$ ,  $S(O)_2NH(C_{1-4}$  alkyl),  $S(O)_2N(C_{1-4}$  alkyl),  $S(O)_2NH_2$ ,  $S(O)_2NH_2$ , S(O

or a pharmaceutically acceptable salt thereof or a solvate thereof.

- 2. (Currently amended) A compound as claimed in claim 1 wherein R<sup>1</sup> is NR<sup>13</sup>C(O)R<sup>14</sup>, wherein R<sup>13</sup> and R<sup>14</sup> are as defined in claim 1.
- 3. (Currently amended) A compound as claimed in claim 1-or 2 wherein R<sup>1</sup> is optionally substituted aryl or optionally substituted heteroaryl, wherein the optional substituents are as recited in claim 1.
- 4 (Currently amended) A compound as claimed in claim 1, 2 or 3 wherein R<sup>1</sup> is optionally substituted heterocyclyl.
- 5. (Currently amended) A compound as claimed in any one of the preceding claims claim 1 wherein R<sup>2</sup> is phenyl optionally substituted by halo or CF<sub>3</sub>.

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(Currently amended) A compound as claimed in any one of the preceding claims claim 1 6. wherein R<sup>3</sup> is hydrogen.

- 7. (Currently amended) A compound as claimed in any one of the preceding claims claim 1 wherein  $R^4$  is heterocyclyl optionally substituted by oxo, halogen, cyano, hydroxy,  $C_{1-6}$ alkyl (itself optionally substituted by halogen, hydroxy, cyano or  $C_{1-4}$  alkoxy),  $C_{2-4}$ alkenyl, CO<sub>2</sub>(C<sub>1-4</sub> alkyl), S(O)<sub>2</sub>(C<sub>1-4</sub> alkyl), CH(O), S(O)<sub>2</sub>(C<sub>1-4</sub> haloalkyl), C(O)(C<sub>1-4</sub> alkyl),  $C(O)(C_{3-6}$  cycloalkyl),  $N(C_{1-4}$  alkyl)<sub>2</sub>,  $C(O)NH_2$ ,  $C(O)N(C_{1-4}$  alkyl)<sub>2</sub> or  $NHC(O)(C_{1-4} \text{ alkyl}).$
- 8. (Currently amended) A compound as claimed in any one of the preceding claims claim 1 wherein heterocyclyl is piperidinyl, homopiperazinyl, thiomorpholinyl, pyrrolidinyl, piperazinyl, 1,2,3,6-tetrahydropyridinyl, morpholinyl, 2,5-dihydropyrrolyl, azetidinyl, 1.4-oxepanyl, 3-azabicyclo[3.2.1]octan-3-yl, 8-azaspiro[4.5]decanyl or 3azabicyclo[3.1.0]hex-3-yl.
- 9. (Currently amended) A compound as claimed in any one of the preceding claims claim 1 wherein A is absent.
- 10. (Currently amended) A compound as claimed in any one of the preceding claims claim 1 wherein n is 2.
- 11. (Currently amended) A process for preparing a compound of formula (I) as claimed in claim 1, the process comprising:
  - i. when R<sup>1</sup> is an N-linked optionally substituted heterocycle, reacting a compound of formula (II):

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$$R^2$$
 $N$ 
 $A$ 
 $(CH_2)_n$ 
 $-S(O)_2$ 
 $-R^4$ 
 $(III)$ 

wherein  $R^2$ ,  $R^3$ ,  $R^4$ , n, A and X are as defined in claim 1, with a compound  $R^1H$  (wherein the H is on a heterocycle ring nitrogen atom) wherein  $R^1$  is as defined in claim 1, in the presence of a suitable base and in a suitable solvent;

ii. when R<sup>3</sup> is hydrogen, coupling a compound of formula (III):

$$HN$$
 $A$ 
 $(CH2)n-S(O)2-R4$  (III)

wherein R<sup>4</sup>, n, A and X are as defined in claim 1, with a compound of formula (IV):

$$R^2$$
  $H$   $O$   $(IV)$ 

wherein R<sup>1</sup> and R<sup>2</sup> are as defined in claim 1, in the presence of NaBH(OAc)<sub>3</sub> (wherein Ac is C(O)CH<sub>3</sub>) in a suitable solvent at room temperature; or, iii. when R<sup>3</sup> is hydrogen, coupling a compound of formula (III):

$$HN$$
 $A$ 
 $(CH2)n-S(O)2-R4 (III)$ 

wherein R<sup>4</sup>, n, A and X are as defined in claim 1, with a compound of formula (V):

$$R^2$$
 $L$ 
 $(V)$ 

wherein  $R^1$  and  $R^2$  are as defined in claim 1 and L is an activated leaving group, in the presence of a base, in a suitable solvent at a temperature from 60°C up to the boiling point of the solvent.

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12. (Original) A pharmaceutical composition which comprises a compound as claimed in claim 1, or a pharmaceutically acceptable salt thereof or solvate thereof, and a pharmaceutically acceptable adjuvant, diluent or carrier.

## 13-14. (Cancelled)

15. (Original) A method of treating a CCR5 mediated disease state comprising administering to a patient in need of such treatment an effective amount of a compound as claimed in claim 1, or a pharmaceutically acceptable salt thereof or solvate thereof.